

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

ORDER NO. 97-100

WASTE DISCHARGE REQUIREMENTS FOR:

United State Navy
Mare Island (formerly Mare Island Naval Shipyard)
Vallejo, Solano County

The California Regional Water Quality Control Board (hereinafter Board) finds that:

1. The U.S. Navy (hereinafter the discharger) submitted a Report of Waste Discharge to the Board on January 10, 1997 for the operation of a Soil Treatment Facility (STF) to process petroleum contaminated soils at Building A258 on Mare Island.
2. Mare Island is located near the City of Vallejo in Solano County (see Attachment 1). It is bordered by San Pablo Bay to the west and by Carquinez Strait to the south. Mare Island Strait, which connects the Napa River to Carquinez Strait, separates Mare Island from the City of Vallejo to the east. Building A258, the proposed site for the soil treatment facility, is located on the southeast portion of Mare Island east of Railroad Avenue (see Attachment 2).
3. Up to 11,600 cubic yards per year of petroleum contaminated soils from underground storage tank removal sites and other petroleum related clean-up sites at Mare Island will be trucked to the STF and processed to remove petroleum related compounds. Treated soils from the STF will be used for fill material at environmental restoration sites at Mare Island or for cover material for the closure of a landfill at Mare Island.

PURPOSE OF ORDER

4. The primary objectives of this order are to establish Waste Discharge Requirements for the construction, operation and monitoring of the STF, including waste acceptance criteria (specification No. B2) and minimum treatment standards as stated in Specification No. B4. This order permits the treatment of petroleum contaminated soils only, and explicitly excludes hazardous wastes. Enhanced bioremediation and aeration will be the primary processes used for soil treatment.

SITE DESCRIPTION AND HISTORY

5. Mare Island is owned by the U.S. Navy and was used as a naval shipyard from 1854 until it was officially closed in April 1996. The primary mission was ship and submarine construction, modernization, repairing, and basing. Heavy industrial activities associated with this mission occurred primarily on the east side of the island adjacent to Mare Island Strait. The west side of the island is primarily vacant land containing inactive dredge

ponds and wetlands. The City of Vallejo will be taking over control of Mare Island through leases and eventually property transfer. The City has developed and adopted a reuse plan for Mare Island.

WASTES AND THEIR CLASSIFICATION

6. The discharger proposes to treat petroleum contaminated soils including gasoline, gasohol, jet fuel, diesel, kerosene, and fuel oils. No hazardous waste will be accepted for treatment and contaminated soil shall contain no free liquid. Contaminated soils accepted for treatment at the STF will be classified as solid designated waste under Section 2522, Chapter 15, Title 23, California Code of Regulations (CCR). Wastes listed in 40 CFR 261 will not be accepted at this facility, nor will wastes with excessive heavy metal concentrations as per Section 66261(a)(2)(A), CCR or wastes defined in Sections 66261.21 through 66261.24, CCR.
7. Treated soil discharged from the STF will be classified as inert waste under Section 2524, Chapter 15 as it will not contain contaminants in concentrations above water quality objectives. The STF will discharge low moisture, non-water soluble, non-hazardous, inert waste.

DESIGN OF SOIL TREATMENT FACILITY

8. Enhanced bioremediation is the primary process that will be used to treat petroleum contaminated soils. This process involves adding nutrients to the soil in sufficient amounts to stimulate and maintain biological activity. To accelerate biological activity, an inoculum cultured for the specific contaminant of concern may be added to the soil. To provide aerobic conditions for the microbes, air may be drawn through the piles by applying suction to perforated pipes installed in the piles. Exhaust air from the treatment cells will be vented through activated carbon filters to control possible volatile organic compounds (VOCs) emissions. A biofilter may also be used to control possible VOC emissions. Moisture content of soil will be monitored and maintained to minimize leachate formation.
9. Rice hulls may be blended into the soil to improve air movement through the soil piles, which could improve the speed and/or effectiveness of the treatment. The proposed ratio of rice hulls to soil is approximately 1:3 by volume. The addition of rice hulls could change soil characteristics in a way that may affect the compatibility of the proposed disposal methods (filling excavations and landfill cover material). The addition of organic matter (rice hulls) could decompose, causing settling which could affect the structural integrity of the landfill cap. The addition of rice hulls could also increase the permeability of the soil, which is also not a desirable characteristic of a landfill cap. Specification B4 describes disposal options for which treated soils may be used.
10. Building A258 is an enclosed wood frame warehouse constructed on a concrete floor

mounted on piles approximately 5 feet above the ground surface. The walls and roof of this building consist of sheet metal attached to the wood frame. Petroleum contaminated soils will be stored and treated in either the north treatment cell or the south treatment cell, which are separated by a 20 ft wide by 5 ft deep recess in the floor (see Attachment 3). The north treatment cell is 200 ft long by 48 ft wide. The south treatment cell is 320 ft long by 48 ft wide.

11. Each treatment cell will have a 12 inch high berm. The berms will be constructed of 2 in. X 12 in. wooden planks braced on the edge, except for the sides adjacent to the loading ramps which will be constructed with concrete. The berms will be sealed to the floor with Herculite, a nylon reinforced vinyl material (see Attachment 4). Expansion joints, holes and cracks in the concrete floor will also be sealed.
12. Access to north treatment cell area is provided by paved ramp with a sliding door on the west end of the building. Access to south treatment cell area is provided by paved ramp with a sliding door on the east end of the building. All loading and unloading of soils will be performed inside the treatment facility.
13. The Regional Board adopted a revised Water Quality Plan for the San Francisco Bay Basin (Basin Plan) on June 21, 1995. This updated and consolidated plan represents the Board's master water quality control planning document. The revised Basin Plan was approved by the State Water Resources Control Board and the Office of Administrative Law on July 20 and November 13, respectively, of 1995. A summary of regulatory provisions is contained in Title 23, CCR, Section 3912. The Basin Plan defines beneficial uses and water quality objectives for waters of the State, including surface waters and groundwaters. This Order implements the water quality objectives stated in the Basin Plan and its subsequent amendments.

BENEFICIAL USES

14. Beneficial uses of San Pablo Bay and San Francisco Bay are:
 - a. Wildlife habitat
 - b. Brackish and saltwater marshes
 - c. Fish spawning
 - d. Fish migration
 - e. Commercial fishing
 - f. Sport fishing
 - g. Water contact recreation
 - h. Non-water contact recreation
 - i. Water fowl resting and feeding areas
 - j. Preservation of rare and endangered species
 - k. Estuarine habitat

The existing and potential beneficial uses of the groundwater at Mare Island are:

- a. Industrial water supply
- b. Industrial process water supply
- c. Agricultural water supply
- d. Freshwater replenishment to surface waters

CALIFORNIA ENVIRONMENTAL QUALITY ACT

15. This action is exempt from the provisions of the California Environmental Quality Act pursuant to Section 15301, Title 14, CCR.

COMMENTS

16. The Board has notified the discharger and interested agencies and persons of its intent to prescribe waste discharge requirements for the discharge, and has provided them with an opportunity to submit their written views and recommendations.
17. The Board, in a public meeting, heard and considered all comments pertaining to the discharge.

IT IS HEREBY ORDERED pursuant to authority in Section 13263 of the California Water Code, the discharger, its agents, successors and assigns shall comply with the following:

A. PROHIBITIONS

1. Waste acceptable for treatment at this facility shall not contain any free liquid, and shall be limited to petroleum hydrocarbon contaminated soils including, but not limited to, soils containing gasoline, diesel, and fuel oil.
2. Hazardous wastes listed in 40 CFR 261 shall not be accepted at this facility, nor shall wastes with excessive concentrations pursuant to Section 66261.24(a)(2)(A), Title 22, CCR or hazardous waste subject to remediation under Health and Safety Code 25300, et seq. and 42 U.S.C. 9601 et seq.
3. The receiving and storage of contaminated soil, and disposal of treated soil shall not create pollution or nuisance as defined in Section 3050(l) and (m) of the California Water Code.
4. The discharger, or any future owner or operator of the site, shall not cause the following conditions to exist in waters of the State at any place outside the soil treatment facility.

a. Surface Waters

1. Floating, suspended, or deposited macroscopic particular matter or foam.
2. Bottom deposits or aquatic growth.
3. Alteration of temperature, turbidity, or apparent color beyond natural background levels.
4. Visible, floating, suspended or deposited oil or other products of petroleum origin.
5. Toxic or other deleterious substances to be present in concentrations or quantities which may cause deleterious effects on aquatic biota, wildlife or waterfowl, or which render any of this unfit for human consumption either at levels created in the receiving waters or as a result of biological concentrations.

b. Groundwater

1. The groundwater shall not be degraded as a result of the soil treatment facility waste treatment or treated soil disposal operations.

B. SPECIFICATIONS

1. The soil treatment facility shall be operated and maintained to prevent the release of solid or liquid materials from the building. The roof of the building shall be maintained to prevent rainfall or roof drainage from contacting soil or entering the soil containment cells. The concrete floor shall be maintained to contain all leachate within the soil treatment cells. Monitoring shall be performed as follows:
 - a. Floor: The floor shall be visually inspected weekly to assure there are no cracks or breaks that could cause liquids to be released from the treatment area. The floor shall also be inspected monthly from under the building to look for evidence of leakage.
 - b. Roof and Drainage System: The roof and drainage system shall be visually inspected to assure that all rainfall does not enter the treatment area in any way. Prior to the beginning of the rainy season (October), the roof and drainage system shall be inspected for integrity to assure that it will operate as designed. Visual inspections shall also be performed daily during rainfall events (weekends excepted) to check for roof leaks or improper drainage. Identified problems shall be repaired as soon as possible, but before the next rainfall event.
2. Soil Acceptance: The discharger is required to certify that the incoming soils are contaminated with petroleum constituents only. If the incoming soils are from a location in which only petroleum contaminants are suspected, the material only needs to be analyzed for Total Petroleum Hydrocarbons (TPH, method 8015 modified for gas, diesel, and fuel oil), and BTEX compounds (method 8020), and Polynuclear Aromatic Hydrocarbons (PAHs). However, if the soil originates from an area suspected commingled pollution or the suspected source is waste oil, the soils must be analyzed for the following constituents:

- * TPH (8015 modified for gas, diesel, or fuel oil)
- * BTEX
- * SVOCs, including PAHs
- * PCBs
- * Metals

If the results of the above analytical testing do not meet the criteria set in Prohibition A2 of the Order, soils may not be treated at this facility.

3. The discharger shall generate and maintain records to track all soils from its origin to its final destination, including documentation certifying that the contaminants sources are petroleum only. These records shall also provide the volume, source location with site history, and all analytical results.
4. Treatment Standards: Treated soil shall be analyzed for the following constituents:

<u>Parameter</u>	<u>Method</u>	<u>Acceptance Limit</u>
TPH	8015 (modified for gas, diesel, and fuel oil)	100 mg/kg
Benzene	8020	0.005 mg/kg
Toluene	8020	0.005 mg/kg
Ethylbenzene	8020	0.005 mg/kg
Xylene	8020	0.005mg/kg
PAHs	8310	none

Immunoassay analysis may be used with ten percent (10%) California certified laboratory verification. Treated soil that does not meet these acceptance limits shall not be removed from the treatment facility for disposal. Treated soil meeting these limits may be used for the following purposes:

- a. Excavation backfill. Treated soils may be used for backfill for Underground Storage Tank (UST) excavations, fuel line removal excavations, or remediation project excavations at Mare Island 1.5 feet or greater below the surface. Backfill on the top 1.5 feet of the surface shall be clean soil only. Treated soils may not be used for backfill in any area where groundwater is tidally influenced.
- b. Cover material for the former landfill at Mare Island. Treated soils must be appropriate material for landfill cover as described in Title 23, Chapter 15, Sections 2580 and 2581, CCR. Treated soils may be used in the foundation layer (Section 2581(a)(1)) under the low permeability cap (Section 2581(a)(2)), but may not be used in the vegetated layer (Section 2581(a)(3)) over the low permeability cap. Treated soils containing decomposable material shall be mixed with other soil or placed in a way as to minimize settling of the landfill cover.

C. PROVISIONS

1. ON AN ANNUAL BASIS, the discharger shall submit a monitoring report to the Regional Board Executive Officer summarizing the following information:
 - a. approximate volume of soil entering the facility each month along with analytical results,
 - b. approximate volume of soil discharge from the facility each month after treatment along with analytical results,
 - c. location of the discharge and purpose, and
 - d. violation of this Order along with the corrective action.
2. The discharger may, by written request, seek modification or revisions, or termination of this Order at any time. This Order may be modified, terminated, or revised by the Regional Board.
3. All laboratory verification samples shall be analyzed by a California certified laboratory or laboratory accepted by the Regional Board using approved EPA methods for the type of analysis performed. All laboratories or the consultant shall be required to maintain quality assurance/quality control records for Regional Board review.
4. The discharger shall maintain in good working order, and operate in the normal standard of care, any facility, control or management system to achieve compliance with the requirements of this Order.
5. Copies of all correspondence, reports, and documents pertaining to compliance with Prohibitions, Specifications, and Provisions of this Order shall be provided to the Department of Toxic Substances Control.
6. In the event of any change in control or ownership of the facility presently owned or controlled by the discharger, the discharger shall notify the succeeding owner or operator of the existence of this Order by letter, a copy of which shall immediately be forwarded to this office. To assume operation of this Order, the succeeding owner or operator must apply in writing to the Executive Officer requesting transfer of this Order within 30 days of the change in ownership. The request must contain the requesting entity's full legal name, the address and telephone number of the persons responsible for contact with the Board. Failure to submit the request shall be considered a discharge without requirements, a violation of the California Water Code.
7. The discharger must comply with all the conditions of these waste discharge requirements. Violations may result in enforcement actions, including Regional Board orders or court orders requiring corrective action or imposing civil monetary liability, or in modification or revocation of these waste discharge requirements by the Regional Board. [CWC Sections 13261, 13263, 13265, 13268, 13300, 13301, 13304, 13340, 13350]

8. The discharger shall allow the Regional Board, or an authorized representative upon presentation of credentials and other documentation as may be required by law, to:
 - a. Enter upon the discharger's premises, in accordance with the discharger's health and safety procedures, where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this Order;
 - b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this Order;
 - c. Inspect at any reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Order; and
 - d. Sample or monitor at reasonable times, for the purposes of assuring compliance with this Order or as otherwise authorized by the California Water Code, any substance or parameter at any location [CWC Section 13267]
9. If in performing any work pursuant to this Order, any hazardous substance is discharged in or on any waters of the State, or discharged or deposited where it is, or probably will be discharged in or on waters of the State, the discharger shall report such a discharge to the Board, at (510) 286-1255 on weekdays during office hours from 8:00 a.m. to 5:00 p.m., and the Office of Emergency Services at (800)852-7550 during non-office hours. A written report shall be filed with the Board within five (5) working days and shall contain information relative to: the nature of the waste or pollutant, quantity involved, duration of incident, cause of spill, Spill Prevention, Control and Countermeasure Plan in effect, if any, estimated size of the affected area, nature of effects, corrective measures that have been taken or are planned, and a schedule of these activities, and persons notified.
10. The discharger shall maintain a copy of this Order at the site so as to available at all times to operating personnel.
11. This Board considers the discharger to have continuing responsibility for correcting any problems which arise in the future as a result of this soil treatment or related discharge operation.
12. These requirements do not authorize commission of any act causing injury to the property of another or of the public; do not convey any property rights; do not remove liability under state, local, or federal laws; and do not authorize the discharge of waste without appropriate permits from other agencies or organizations.
13. This Order is subject to Board review and updating, as necessary, to comply with changing State and Federal laws, regulations, policies, or guidelines; changes in the Board's Basin Plan; or changes in the discharge characteristics.

I, Loretta K. Barsamian, Executive Officer, do hereby certify that the foregoing is a full, true and correct copy of an Order adopted by the California Regional Water Quality Control Board, San Francisco Bay Region, on August 20, 1997.

A handwritten signature in cursive script, reading "Loretta K. Barsamian".

Loretta K. Barsamian
Executive Officer

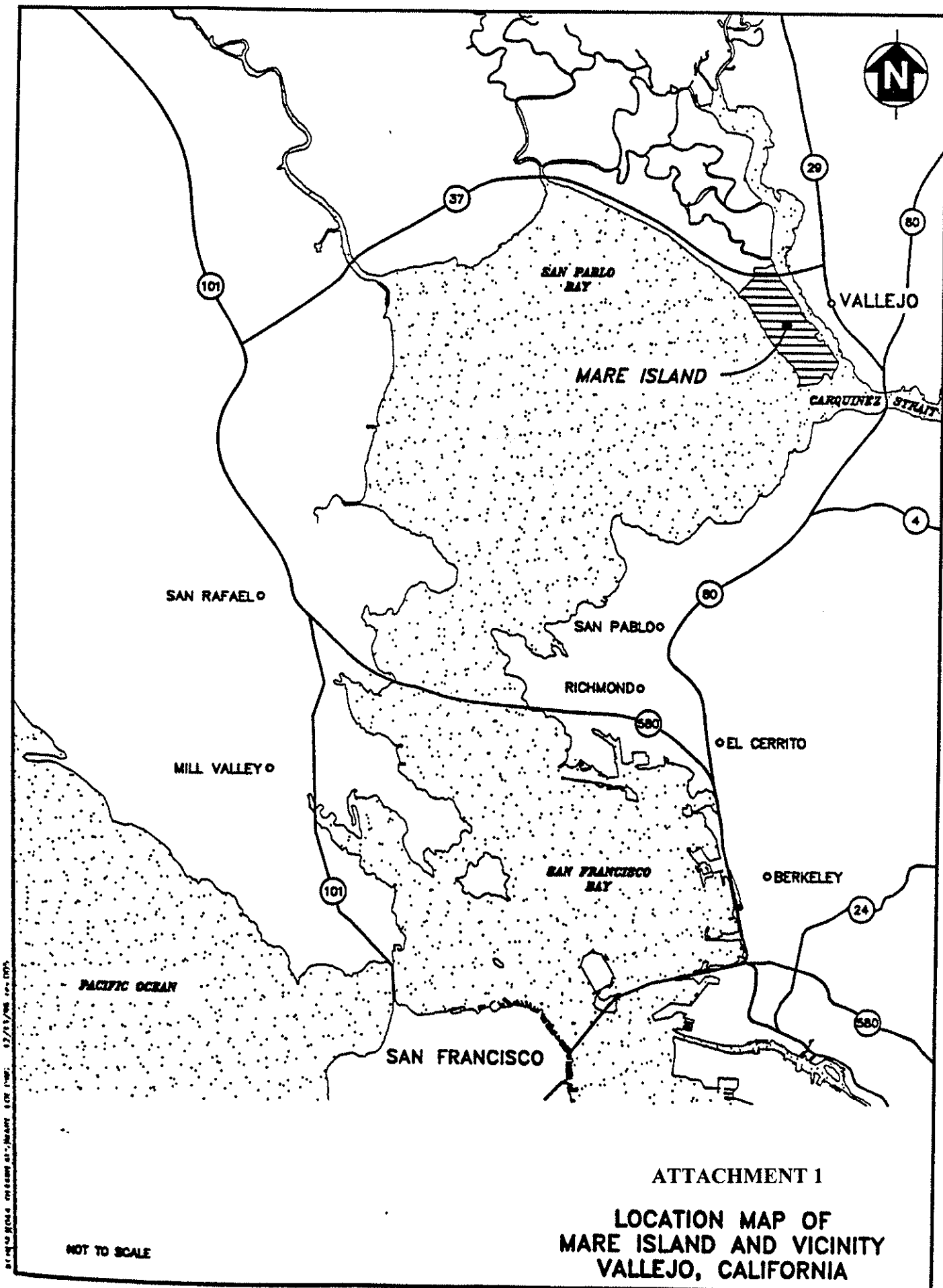
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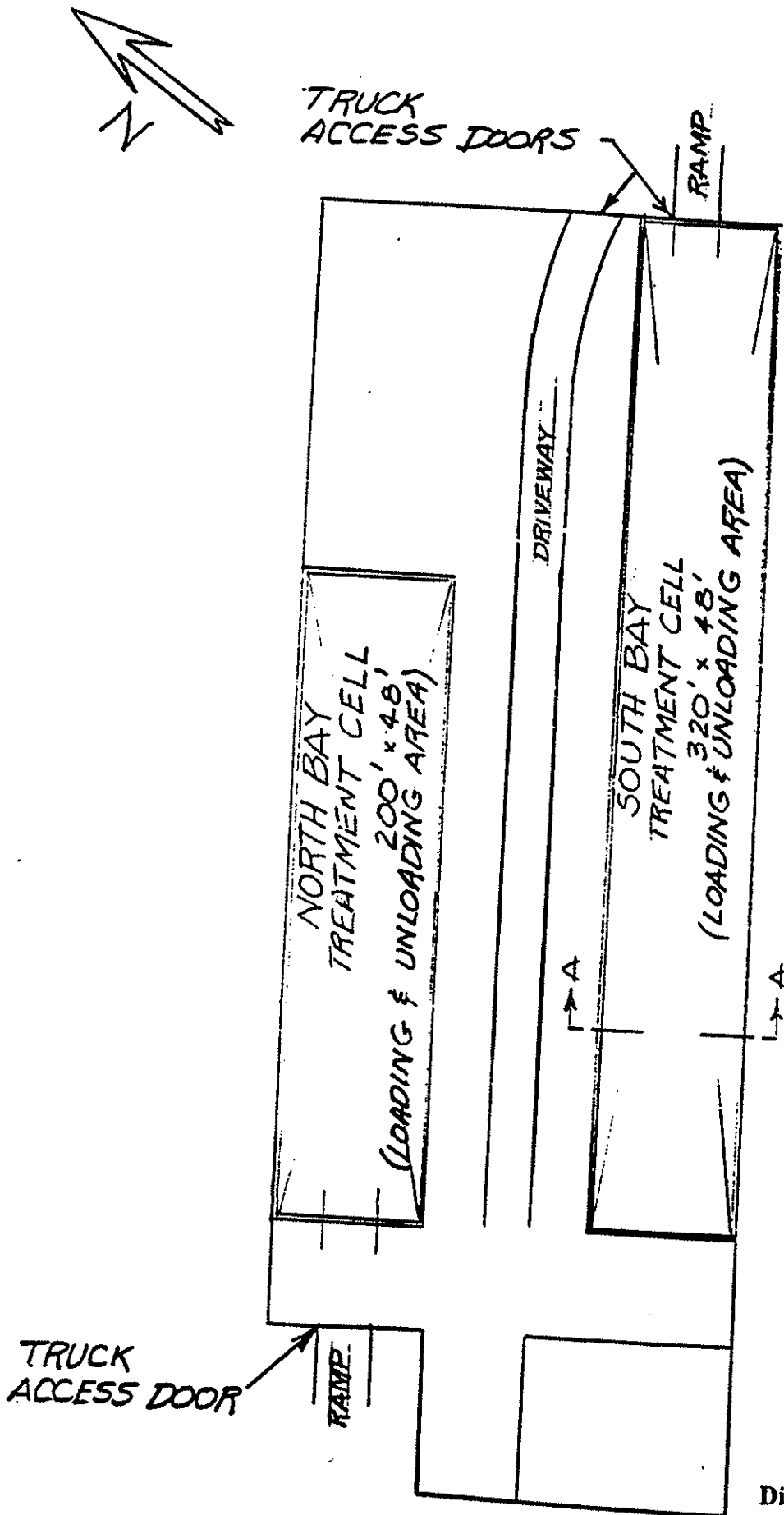
Attachment 1: Site Location Map

Attachment 2: Site Map

Attachment 3: Diagram of Soil Treatment Facility

Attachment 4: Typical Treatment Cell Cross Section



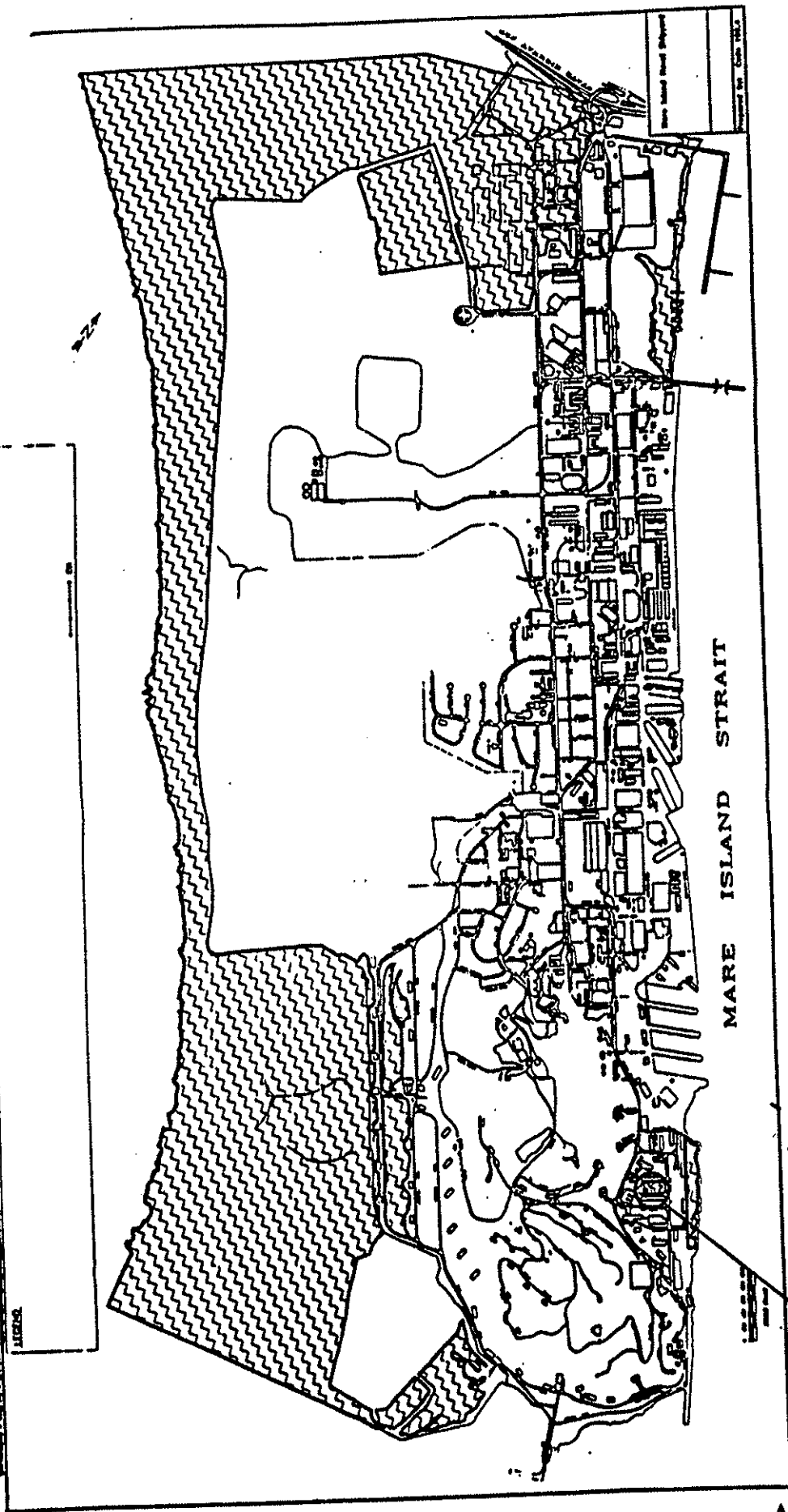


PLAN VIEW

BLDG A-258

ATTACHMENT 3

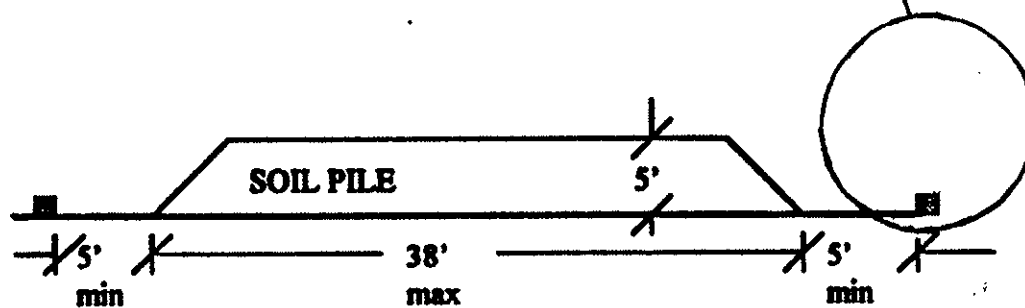
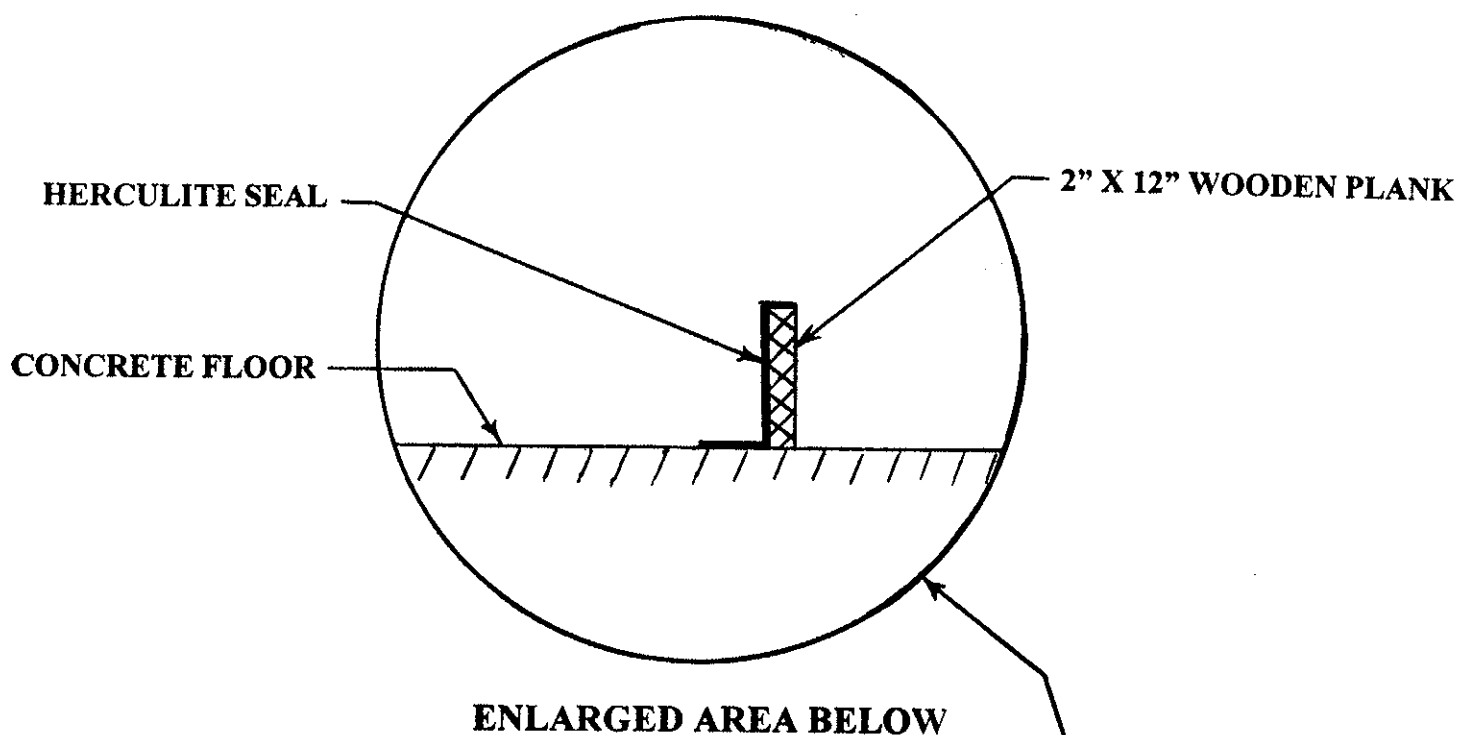
Diagram of Soil Treatment Facility



BUILDING A-258

ATTACHMENT 2

Site Map of Building A258



TYPICAL TREATMENT CELL

SECTION A-A

NOT TO SCALE

ATTACHMENT 4

Typical Treatment Cell Cross Section